

17.4: Discussion

Discussion

Write a minimum one-page (12 font, single spaced) discussion on the experiment conducted this week. Address **at least one question in each category** as fully as possible integrating the collected data, providing explanations for the observed trends, and evaluating whether your original assumptions about the experiment were validated by the results. **The assignment will be graded on completeness, clarity of the explanations and the meaningful integration of the collected and calculated data.** Correct grammar and appropriate format for the chemical formulae and chemical reactions is expected. **You may use the outline included at the end of this document on how to build your essay to address each category.**

1. (Existing knowledge, research, and views) Define thermal equilibrium.
2. (Acquiring competencies) Describe how a coffee cup calorimeter was used to study thermal equilibrium.
3. (Acquiring competencies) Describe at least 3 properties of Styrofoam cups that make them suitable for these experiments.
4. (Representation and interpretation) Write the formula for calculating heat using specific heat capacity and explain what it means.
5. (Representation and interpretation) Write the formula for calculating heat using the enthalpy of fusion and explain what it means.
6. (Representation and interpretation) Write the formula for the mathematical expression describing thermal equilibrium between the system and the calorimeter and explain what it means.
7. (Analysis) Compare your value for the enthalpy of fusion to the values of the other groups. Evaluate the precision of your measurements.
8. (Analysis) Compare your value for the enthalpy of fusion to the literature value of 6.01 kJ/mol. Evaluate the accuracy of your measurements.
9. (Analysis) Compare your value for the specific heat of ice to the values of the other groups. Evaluate the precision of your measurements.
10. (Analysis) Compare your value for the specific heat of ice to the literature value of 2.108 J/(g×°C). Evaluate the accuracy of your measurements.
11. (Assumptions and limitations) Describe at least one assumption that you made about the ice cube in experiment 1. Evaluate how the final temperature of the cold water would be affected if your assumption is not valid.
12. (Analysis) Provide at least one reason why we had to wait for the temperature to remain constant before terminating each experiment. Evaluate how not waiting would affect the values for the enthalpy of fusion and the specific heat for ice.
13. (Analysis) Would you expect the calculated values for the enthalpy of fusion and the specific heat of ice to change, if you started the experiment with colder or warmer water in the cup? Provide at least one reason for your choice.

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